Illinois Coastal Management
Issue Paper

Little Calumet and Grand Calumet River Corridor White Paper

Prepared for
Illinois Department of Natural Resources

Prepared by
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and

Northeastern Illinois Planning Commission

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1. General Description

1.1. Introduction

The slow-moving cloudy water, post-industrial landscape, and remnant natural areas of the Little Calumet and Grand Calumet River Corridor are an elemental feature of Illinois' Lake Michigan coastal zone. Despite its inland location, the Corridor, along with the rest of the Calumet area, is part of the Lake Plain, one of the three fundamental physiographic regions of the southern Lake Michigan region identified by Chicago Wilderness (1997), and shares in its unique geo-logic and botanical history. The Corridor's wetlands serve as stopovers for migratory birds traveling the Mississippi Flyway and along the western shore of Lake Michigan. Metropolitan development patterns depended on the dialectic between the lake and the rivers as industrial expan-sion along the Calumet River system allowed Chicago to preserve the Lake Michigan shoreline for recreation and public enjoyment. The Calumet River is now one of the main gateways for boaters entering Lake Michigan. And one of the most problematic development decisions of Chicago's history, the reversal of the Calumet and Chicago Rivers, binds the lake and the rivers together but still polarizes opinion (see, e.g., Miner 2006).

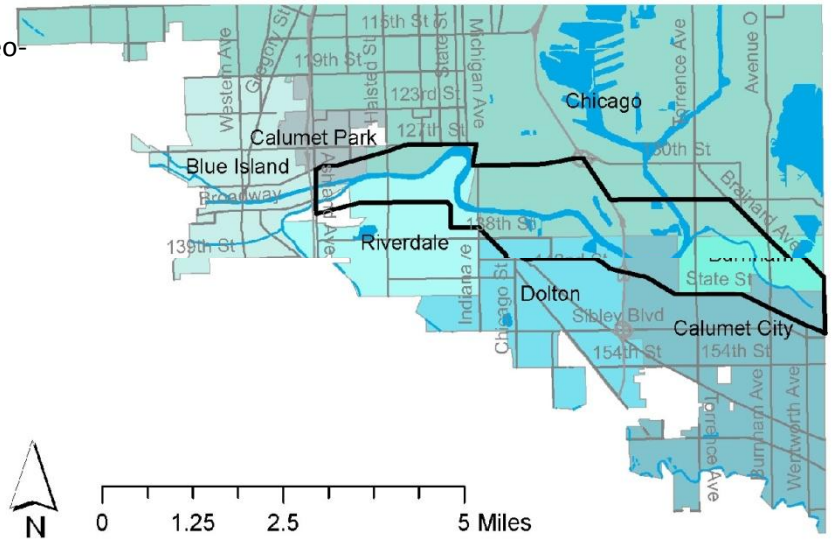


Figure 1. Little Calumet and Grand Calumet River Corridor Boundary

While deeply important and part of what makes the Calumet region the Calumet, this white paper does not cover the geology of the region, early settlement, or industrial and political history beyond what is necessary to convey current conditions. These have been dealt with extensively elsewhere (e.g., NPS 1998, IDNR 2000, Ogorek 2004, Field Museum 2002). We focus on the Corridor strategically and highlight the places and purposes that could contribute the most to a vital and restored Great Lakes coastal zone through the Illinois Coastal Management Pro-gram.

1.2. Corridor Characteristics

The proposed Little Calumet and Grand Calumet River Corridor (Corridor) runs east–west from the Indiana state line to Ashland Avenue in Chicago. In between, the boundary is generally defined by the first arterial street away from the river. It encompasses 5,139 acres, of which the river system comprises about 435. The Corridor includes parts of Blue Island, Burnham, Calumet City, Calumet Park, Chicago, Dolton, and Riverdale.

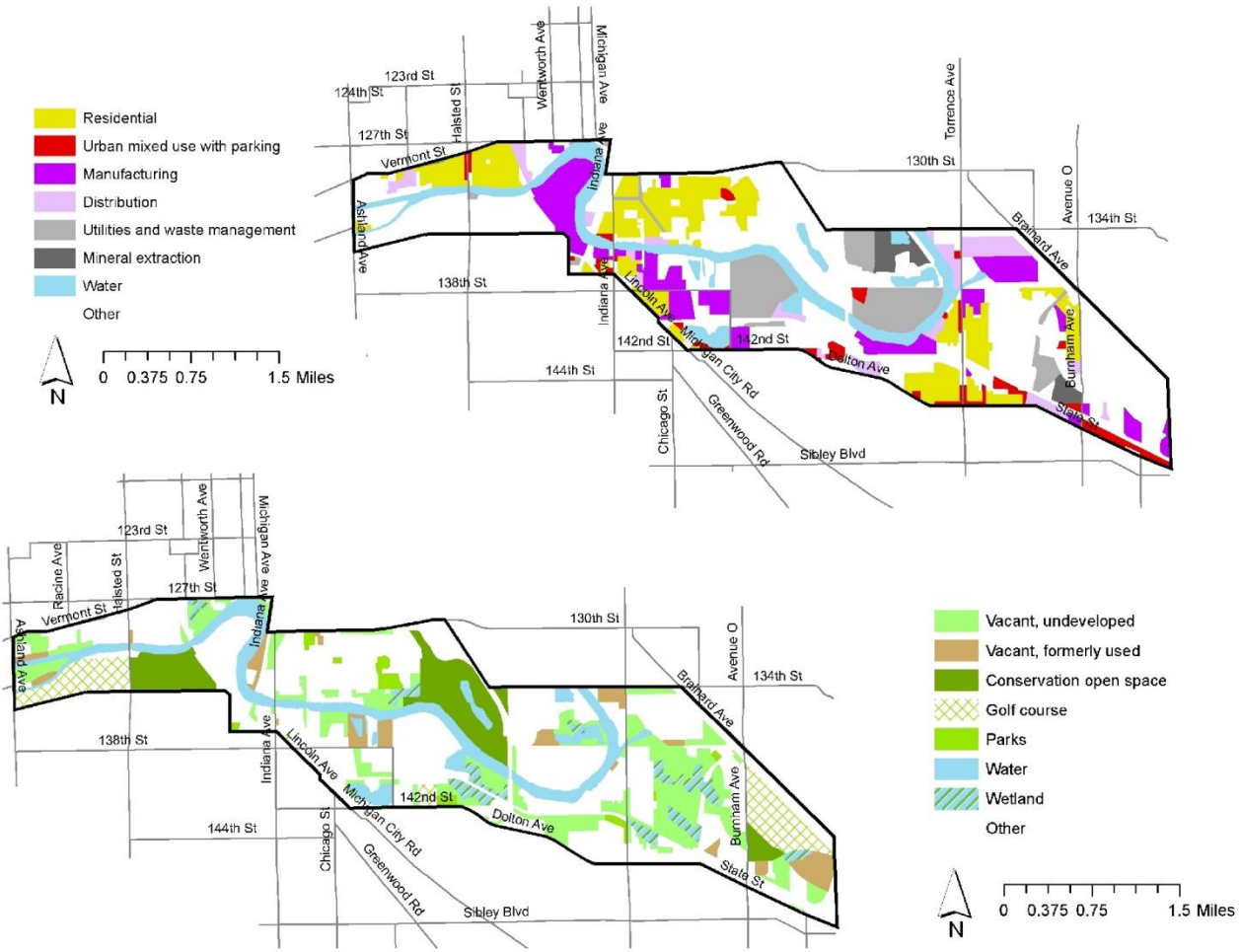


Figure 2. Land Use (2001) in the Little Calumet and Grand Calumet River Corridor

The Little Calumet River runs 6.9 miles from its confluence with the Grand Calumet to Ashland Avenue, the approximate beginning of the Cal-Sag Channel (CDM 2004). The Calumet River has only a short stretch within the Corridor, from O'Brien Lock and Dam south to the Grand Calumet. North of the O'Brien Lock and Dam is the Lake Michigan water-shed.

The Corridor has what may be the most diverse mix of land uses in the Illinois coastal zone. Much of the land within the Corridor is either legally protected open space such as parks and forest preserves (including two golf courses within forest preserves) or vacant land that is open but not publicly accessible or protected. Vacant land makes up the largest land use category. How much of that category is brownfield and whether contamination has been fully characterized is unclear. The Corridor has numerous landfills and industrial areas in close proximity to residences. Manufacturing and distribution operations together make up about 14 percent of the Corridor. The residential areas are on a typical grid plat and continue with little buffer immediately onto the rivers, with the exception of the Chicago Housing Authority's Altgeld Gardens development, which is planned with an inward-turning, campsite-like layout.

1.4. Visions for the Region as Expressed in Previous Planning Efforts

The seminal green proposal for the Calumet Region, and the culmination of many years of advocacy, is the Calumet Ecological Park or National Heritage Area. This effort was headed up by the Calumet Ecological Park Association,

which formed in 1993 to advocate Congressional funding for a feasibility study by the National Park Service (Pearson 2001). The study, which the Park Service undertook in 1997, concentrates on a large area stretching from Ogden Dunes in Porter County, Indiana to around the vacant USX South Works site in Chicago (NPS 1998), and including the Corridor. While the Park Service did not recommend establishing the region as a National Park Service unit, it did highlight the Calumet region's wealth of natural areas, unique history, and cultural patrimony and finally gave its blessing to a National Heritage Area designation. The Park Service report concluded with a vision of a resource protection plan constructed from the input of numerous organizations:

Corridor Land Use (2001)	Acres	Percent
Residential	776	15.1%
Urban mixed use with parking	152	3.0%
Vacant	983	19.1%
Undeveloped	782	79.6%
Formerly used	201	20.4%
Manufacturing	496	9.7%
Distribution	225	4.4%
Utilities and waste management	435	8.5%
Mineral extraction	88	1.7%
Conservation open space	414	8.1%
Recreational open space	386	7.5%
Golf course	321	83.2%
Parks	65	16.8%
Water	531	10.3%
River	435	81.9%
Lakes and lagoons	96	18.1%
Wetland	172	3.3%
Other	481	9.4%
Total	5,139	100.0%

Source: Aggregated from NIPC 2005

> A comprehensive process that strives to reconcile the promotion of economic opportunities and livable communities with sustainable natural and cultural resource management by protecting the cultural legacy and conserving ecological integrity and biodiversity. This approach will demonstrate the positive benefits of linking economic redevelopment, environmental recovery and conservation planning (NPS 1998: 40).

After dropping its plan for a third airport in the Calumet region in the early 1990s, the City of Chicago embraced a large-scale plan for rehabilitating remnant natural areas, focusing around Lake Calumet, while promoting the value of the area to industry. The City's sweeping Calumet Land Use Plan outlines these changes. Some of the details of rehabilitation have been brought out in the Calumet Area Ecological Management Strategy (2002), while a higher form of environ-mental design for industrial redevelopment is being implemented through the Calumet Design Guidelines (2004). It is clear from these documents that restoration to pre-settlement conditions is not a goal, both because redevelopment is important and because complete restoration is unfeasible. Newly acquired and rehabilitated lands would become part of what is being called the Calumet Open Space Reserve.

Local planning efforts within the Corridor seem to adhere in a basic sense to this converging Calumet regional vision. Economic development and ecological rehabilitation are paired goals. There are efforts to yoke the two in eco- or cultural tourism, which depend on an attractive, non-depleted resource to draw spending power from outside the community. Financial and planning resources of a magnitude

similar to those targeted to Lake Calumet in Chicago are not currently being directed toward the Corridor, however, despite its wealth of important sites. Less than 15 percent of the Calumet Open Space Reserve would be outside the City of Chicago, and a smaller area would be within the Corridor (Riddell 2001).

In the municipalities immediately south of Chicago, the South Suburban Mayors and Managers Association and Openlands Project have together developed an initiative to preserve and re-store natural areas and enhance outdoor recreation. The present document relies heavily on a plan produced from that effort, the South Suburban Calumet Area Open Space Initiative (2004).

Even broader regional support for open space preservation in the Corridor has been shown through participatory planning techniques in the Northeastern Illinois Planning Commission's (NIPC) 2040 Framework Plan, which recommended a green swath of riparian land along the Lit-tle Calumet. Similar results were obtained through a participatory exercise with resource ex-perts convened by Chicago Wilderness in the Green Infrastructure Vision (2004), a visual and spa-tial interpretation of the Chicago Wilderness Biodiversity Recovery Plan (1999). Additional re-gionally-adopted plans indicate strong support for preserving and enhancing the Corridor and have likewise involved extensive regional participation. These include the Northeastern Illinois Regional Greenways and Trails Plan (adopted by NIPC in 1997) and the Northeastern Illinois Water Trails Plan (adopted by NIPC in 1999).

2. Issues of Concern

2.1. Water Quality

2.1.1 Hydrologic Modification and Channel Conditions

The Little Calumet has been modified so extensively that, rather than draining its catchment area into Lake Michigan as it did originally, it now receives most of its flow as treated wastewater diverted from Lake Michigan and drains it to the Illinois River. The Metropolitan Water Reclamation District of Greater Chicago's (MWRDGC) Calumet wastewater treatment plant, whose outfall is near the "thumb" where the Mittal Steel (formerly Acme) plant is located, discharges 213 cubic feet per second (cfs) into the Little Calumet during a 7-day, 10-year low flow (7Q10) period (ISWS 2003). This is in contrast to the 20 cfs 7Q10 flow in the river immediately down-stream from its confluence with the Grant Calumet (CDM 2004). In a dry period, then, municipal effluent can make up over 90 percent of the flow in the river. The average annual flow rate of the MWRDGC discharge is much higher, however, at 417 cfs (CDM 2004).

While the natural flow in the Little Calumet has been replaced with wastewater, the land around it, compared to elsewhere in the Calumet region, is mostly original (Kay et al. 1996a). The present shorelines of Lakes Calumet, Wolf, and even Michigan are the result of decades of filling and land construction. Nonetheless, the river has been reshaped and physically relocated, even to the extent of constructing a 180 degree bend in the channel (CDM 2004). The river has been channelized to accommodate commercial navigation. The banks are generally earthen slopes with stretches of vertical wall. They are now severely eroded and unstable in places, caused mainly by wave action from barges and recreational boaters, to the extent that upland areas are also threatened. The shorelines of the

recreational lakes in the Corridor are likewise eroding from heavy recreational use (Kircher 2005).

2.1.2. Chemical Parameters

Considering that the majority of the flow in the Little Calumet is treated municipal and industrial effluent, and that the natural environment of the Calumet region has been modified dramatically, water quality is a central issue in the Corridor. Impairments in the Little Calumet, as identified by the Illinois Environmental Protection Agency (IEPA 2004), include polychlorinated biphenyls (PCBs) and mercury as well as iron, low dissolved oxygen, flow alterations, and physical habitat alterations. The Little Calumet is designated by the Illinois EPA for aquatic life support and secondary contact recreation (i.e., boating but not swimming).

Parameter	Direction	Change per year
DO	Improvement	+0.094 mg/L
NH4-N	Improvement	–0.398 mg/L
NO3+NO2-N	Decline	+0.107 mg/L
TKN	Improvement	–0.375 mg/L
Total P	Decline	+0.013 mg/L
SO4	Decline	+0.833 mg/L
Turbidity	No significant change	—
TSS	No significant change	—
Fecal coliform	Improvement	–233 colonies/100 mL
Cyanide	Improvement	–0.0013 mg/L
Phenol	Decline	+0.833 □g/L

Source: Larson 2001

Some water quality parameters have shown improvement, however. Evaluating a set of samples taken at Ashland Avenue, Larson (2001) was able to show that, from the mid-1970s to the mid-1990s, five out of eleven water quality parameters showed statistically significant improvement trends. Projects undertaken by the MWRDGC have made important contributions to the improvement trend. MWRDGC operates several Sidestream Elevated Pool Aeration (SEPA) stations along the Calumet waterway system to increase dissolved oxygen levels. SEPA Station Number 2 is located on the north side of the Little Calumet River near Indiana Avenue (CDM 2004). The Tunnel and Reservoir Project (TARP), otherwise known as the Deep Tunnel system, has also played a role in decreasing fecal coliform levels and biological oxygen demand. Larson (2001) describes a decline in fecal coliform levels measured at the Ashland Avenue monitoring station in the years following the implementation of TARP in 1987.

The Grand Calumet is in worse condition than the Little Calumet. On the Indiana side, the en-tire river eastward from a point near the Indiana Harbor Canal is included in an Area of Concern under the Great Lakes Water Quality Agreement (USEPA 2001), although this contamination is generally directed away from the Corridor by a flow divide near the Indiana Harbor Canal. Nonetheless, the Grand Calumet has a negative influence on water quality within the Corridor, notwithstanding its relatively small contribution to flow in the Little Calumet below the confluence. Almost half of the time dissolved oxygen in the Grand Calumet is below 6 mg/L for more than 8 hours per day, whereas it is below this level only 9–13 percent of the time in the stretch of the Little Calumet leading up to the MWRDGC treatment plant outfall (CDM 2004). The Grand Calumet fails to meet the aquatic life support and secondary contact standard for dissolved oxygen almost 20 percent of the time. Likewise, sediment quality in the Grand Calumet is also substantially worse than in the rest of the Calumet System (CDM 2004). The river is on the IEPA's 303(d) list for DDT, heavy metals, and PCBs in the water column, the most likely source being contaminated sediments (IEPA 2005).

2.2. Stormwater Management and Flooding

It has been said that northeastern Illinois is "hydraulically flatter than Kansas." Not only are the floodplains broad and the topography flat, urban development in the region has increased the rate and volume of runoff as well reducing the storage capacity of the floodplains (NIPC 2001). On an annual average basis, flood damages total around $40 million across northeastern Illinois (NIPC 2001). One of the strongest negative influences of the Corridor on the rest of the coastal zone has been the reversal of flow, during flood conditions, from the Little Calumet and Cal-Sag Channel to the Calumet River and ultimately to Lake Michigan. During moderately heavy rain events, the operators of the O'Brien Lock and Dam generally restrict flow in order to increase the conveyance capacity of the Little Calumet (Fitzpatrick and Bhowmik 1990). In flood events, however, a high hydraulic head, and higher flood stages, can develop because of the relatively limited flow capacity of the Cal-Sag Channel and the flat topography. If the lock is then opened in order to reduce the flood stage, the Little Calumet flows toward the Calumet and into Lake Michigan, carrying with it a heavy pollutant load from combined sewer discharges (Kay et al. 1996b). This condition is relatively rare — it occurred five times between 1980 and 2003 (Fitz-patrick and Bhowmik 1990; CDM 2004) — but significant. The TARP project discussed previously will help reduce the likelihood of flow reversal during heavy rain conditions, but there is also lively discussion about whether it forms a complete solution. The issue is much the same as on the North Shore Channel, where the MWRDGC periodically releases water into Lake Michigan through the Wilmette Lock to reduce flooding (Aaberg 2001).

By an act of the Illinois Legislature in 2004, stormwater management in Cook County was placed under the supervision of the MWRDGC with input from Watershed Planning Councils (WPCs) created by the act. Several existing councils of government have the responsibility to help coordinate the development of watershed plans by these WPCs. The municipalities in the Corridor will either be part of the Little Calumet WPC, coordinated by the South Suburban Mayors and Managers Association, or part of the WPC for the combined sewer area that has yet to be created (MWRDGC 2005). SSMMA has been heavily involved in stormwater management for a number of years. While it produced the South Suburban Stormwater Strategy in 1998, in large part to help reduce flooding, the plan's study area included only a small portion of the Corridor.

Source: CDM 2004

2.3. Water Recreation in the Corridor

Motor boating and fishing are the dominant water-based recreational uses in the corridor. However, motor boating is confined to the Little Calumet since the Grand Calumet is very shal-low (CDM 2004). There are numerous marinas, all private, along the Little Calumet North Leg within the proposed CMP boundary. In addition, the Forest Preserve District of Cook County operates the Beaubien Boating Center on the bank of the Little Calumet southeast of Altgeld Gardens and the Calumet Boating Center at Ash-land Avenue. The number of marinas makes it clear that motor boating is an important commercial activity in the Corridor. Unfortunately it may also have damaging effects on water quality in some cases, as prop wash from motor boats can stir up and resuspend contaminated

Observed Activities in Little Calumet	Number	Percent
Swimming, Diving or Jumping	1	0%
Skiing or Tubing	6	3%
Wading	6	3%
Canoeing, Sculling or Kayaking	0	0%
Fishing	145	64%
Power Boating	68	30%
Total	226	100%

sediments (SSMMA/OP 2004).

Observational data suggest that canoeing and kayaking are of limited popularity in the Corridor. This may partly be because of the barge traffic on the Little Calumet North Leg that presents hazards for small, non-motorized craft. Wakes from commercial carriers can overturn canoes, especially if amplified by wave superposition - the "bathtub effect" - caused by steep bank walls (Gobster and Westphal 1998). Also, however, there is no canoe and kayak rental outfit with a riverside location such as there has been on the Chicago River since 2001 (Freed-man 2001), which likely contributes to the significantly wider use of the northern reaches of the Chicago River by canoeists (CDM 2004). The South Leg of the Little Calumet presents a better opportunity for water trail planning because it has no barge traffic. The Grand Calumet also offers water trail opportunities, but both streams are hampered by the lack of canoe/kayak access points (SSMMA/OP 2004).

Marina	Municipality
Dolton Yacht Basin	Dolton
Lake Calumet Boat and Gun Club	Chicago
Pier 11	Riverdale
Rentner	Chicago
Riley's	Burnham
Riverside	Chicago
Skipper's	Chicago
M & M Windjammer	Chicago

Source: Gobster and Westphal 1998; Yellow Pages update

Fishing is a popular activity at the mouth of the Grand Calumet, the SEPA station, and the public boat launches, among other locations. MWRDGC fish sampling data indicate that the dominant species in the Little Calumet North Leg are gizzard shad, common carp, emerald shiner, and bluntnose minnow. Game fish include pumpkinseed, bluegill, and largemouth bass (CDM 2004). On the whole, the abundance of game fish increased over the period 1993–2002, along with fish species diversity in general. This was not the case in the Cal-Sag Channel or the Calumet River (north of the Grand Calumet confluence). It seems intuitively clear that water and habitat quality in the Corridor and beyond must be improved still further to serve demand for recreational fishing. A habitat assessment performed for the Use Attainability Analysis (CDM 2004) ranked the north leg of the Little Calumet as having fair habitat quality. Among its positive qualities, the river had some riffle development and moderate cover, mostly low quality. On the negative side, the Little Calumet had little sinuosity, silty substrates, and no fast current.

Many people also eat the fish they take from the Corridor. A Field Museum researcher inter-viewed anglers at the Beaubien Boating Center and at Flatfoot Lake, finding that consumption is widespread, that it is related to race/ethnicity, and that few people get hazard information from official state sources, relying instead on informal networks and popular media (Longoni n.d.). Risks are frequently misperceived. While the fish advisory on the Little Calumet is considerably less restrictive than on the Grand Calumet in Indiana, the Illinois Department of Natural Re-sources has nonetheless determined that there are chlordane and PCB risks associated with eating various Centrarchidae and carp from the Little Calumet (IDNR 2005).

2.4. Population, Deindustrialization, and Economic Development

The inner ring suburbs of Chicago within or touching the Corridor are small municipalities, essentially built-out. Most have experienced neighborhood succession and population declines, although their populations are now stable or increasing. In the Chicago community area (CCA) of Riverdale, which includes Altgeld Gardens, population still appears to be declining.

	Population					
Place	1960	1970	1980	1990	2000	2030 Forecast
Blue Island	19,618	22,629	21,855	21,203	23,463	25,511
Burnham	2,478	3,634	4,030	3,916	4,170	4,271
Calumet City	25,000	33,107	39,697	37,840	39,071	39,654
Calumet Park	8,448	10,069	8,788	8,418	8,516	8,760
Dolton	18,746	25,990	24,766	23,930	25,614	24,433
Riverdale (Muni)	12,008	15,806	13,233	13,671	15,055	16,225
Riverdale (CCA)	11,448	15,018	13,539	10,821	9,809	—

Source: U.S. Census; 2030 forecast from NIPC 2003.

While income and race vary widely, the communities within and around the Corridor are all lower income and more heavily populated by African Americans than the rest of metropolitan Chicago. Their economies were heavily oriented toward manufacturing and suffered in the 1970s and 1980s. Manufacturing employment in a somewhat larger area that includes the Corridor declined by 47 percent from 1980 to 1995 with most of the decline in the 1980s (IDNR 2000, Vol. 4). There was a concomitant increase in retail and service employment that offset the precipitous drop in manufacturing jobs, but the change significantly altered the nature of the regional economy.

	Bluelsland	Burnham	CalumetCity	CalumetPark	Dolton	Riverdale(Muni)	Riverdale(CCA)	ChicagoPMSA
Median household income	$36,520	$39,053	$38,902	$45,357	$48,020	$38,321	$13,178	$51,680
Percent of PMSA	71%	76%	75%	88%	93%	74%	25%	100%
Percent pop. black alone	22%	53%	53%	84%	82%	85%	97%	19%
Percent pop. white alone	54%	35%	40%	11%	14%	11%	1%	66%
Percent pop. Latino	38%	15%	11%	8%	3%	2%	2%	17%

Source: U.S. Census 2000; race and ethnic categories are not additive

Local officials have identified two basic categories of economic development projects in the Corridor, marina development and industrial or business park development (Morrissy 2005, Gigliotti 2005). The latter would generally take place on idle or vacant sites since the communities in the Corridor are essentially built-out. Several municipalities have plans to upgrade or build marinas in the Corridor (Morrisy 2005, Gigliotti 2005, CDC 2005). Clearly the Little Calumet is an economic resource to these towns, especially its connection to Lake Michigan, as boaters can put in and take out from an inland location and still have access to the lake. Further improvement in water quality would have a spillover

economic benefit to the economies of the towns in the Corridor. There are upward trends in development as well as in water quality. The most prominent new development in the Corridor is situated on the spit of land at the confluence of the Little Calumet South Leg and the Cal-Sag Channel in the City of Blue Island, across from the Joe Louis Golf Course. The Fay's Point development will, when complete, have both a marina and a housing component (condominiums, townhomes, and senior housing).

The Corridor's industries have left a legacy of contamination, and vacant industrial lands frequently are brownfields whose redevelopment is hampered by actual or perceived environ-mental liabilities. No sites within the Corridor have been placed on the National Priorities List (NPL), the USEPA's compendium of contaminated sites eligible for Superfund-financed cleanup, but there are many low-level contaminated sites. Several brownfield properties within the Corridor have been marked by local officials for redevelopment. In Calumet City, for example, three lots totaling 34 acres (the Marble Street Project Area) formerly used in agrochemical manufacturing and auto wrecking have been acquired by the City for redevelopment (Gigliotti 2005; LocationOne 2005). Soils on site are known to have hazardous concentrations of lead. Research into the site's history has also revealed that the agrochemical operation dumped wastes from insecticide and fertilizer at a landfill site adjacent to its plant. The SSMMA administered a USEPA Brownfields Assessment grant in several south suburban communities, including Riverdale and Burnham in the Corridor, which funded brownfield identification and Phase I assessments. Burnham then received a USEPA Brownfields Redevelopment grant to fund Phase II assessments and reuse planning (SSMMA n.d).

2.6. Ecosystem Damage

A century or so of industrial development in the Calumet region has left a mixed record ecol-ogically. While extreme land disturbance and contamination are part of the legacy, the inadver-tent preservation of patches of biodiversity through large and underutilized land holdings, one could argue, is also part of the legacy. Numerous sites within the Corridor — discussed in Sec-tion 4.2 — have seen their way through the transformation of the landscape and now offer a chance for protection. Yet they also face significant continuing threats.

One of the most serious dangers to biodiversity in the Corridor is invasive species, chiefly exotic plants. More than 160 aquatic nuisance species have become established in the Great Lakes Ba-sin during the last century (USFWS n.d.). These include purple loosestrife (Lythrum salicaria), common reed (Phragmites australis), common buckthorn (Rhamnus cathartica), Eurasian water milfoil (Myriophyllum spicatum), and reed canary grass (Phalaris arundinacea), among others. They tend to establish a monoculture, and the resulting plant community is often inhospitable to native fauna (CDOE 2002). Purple loosestrife and Phragmites are particularly destructive in wetland areas. Natural areas within the Corridor are continually threatened by invasive species, requiring both restoration activities and ongoing management. Invasive aquatic fauna are also a concern in the Corridor. The Asian carp, for instance, is now a notorious threat to the Great Lakes whose migration from the Mississippi watershed is being prevented with a temporary electrical barrier located on the Sanitary and Ship Canal (USFWS n.d.).

Habitat fragmentation is a severe problem in the Corridor as in most of the Calumet area, with remnant natural areas separated by much larger areas of urban development (see land use map in Section 1.2). This disrupts biological interaction and migration, reduces habitat heterogeneity, and can cause a loss of species richness if local subpopulations cannot be replenished from the larger population pool (IDNR 2000, Vol. 3: 74). The problem has to be addressed at the land-scape scale by establishing dispersal corridors between habitats in the region and may require different but coordinated management approaches at each habitat site.

Local habitat degradation is also widespread. In addition to the disturbances of urbanization, the legacy of industrialization and landfill development has certainly left contamination. How-ever, the actual level of contamination in specific natural areas within the Corridor has not, to our knowledge, been well characterized. Much progress has been made in this direction in the Lake Calumet area through the Calumet Area Ecological Management Strategy, but this has not yet extended to the Corridor. Lack of knowledge about contaminants is a constraint on natural area rehabilitation.

3. Management Considerations

- Although the Little Calumet is now being used by boaters and anglers, physical conditions and water quality significantly reduce the recreational value of the resource. As the Little Calumet is a “working river” with heavy barge traffic, recreational use must also be balanced against use by industry. These factors together may produce a complex set of tradeoffs in the corridor, underlining the importance of multi-objective planning. Additionally, the municipalities lining the Little Calumet see great value in stimulating marina and associated commercial development. This could have a negative impact on the immediate natural environment, but would be expected to have a positive impact on the Lake Michigan shoreline by absorbing demand for boating infrastructure further inland. Environmental impacts could potentially be addressed through an integrated strategy such as Florida’s Clean Marina program (FDEP 2004).
- High quality natural area remnants require aggressive management. This demands an ongoing commitment of resources to monitoring and maintenance, for instance to en-sure that invasives do not become reestablished after removal.
- The Forest Preserve District of Cook County (FPDCC) owns many of the natural areas described in Section 4 below and would be expected to acquire or otherwise obtain the use of greenways and trail corridors. The Friends of the Forest Preserves (2002) have conducted a study of the operations and policies of the FPDCC and noted several challenges to effective practices in its landholdings, including controversies over restoration and ecosystem management and missed opportunities to acquire lands marked in the FPDCC’s Acquisition Plan. The details of the Friends’ findings cannot be summarized here, but the FPDCC should take them into consideration in its efforts in the Corridor.
- While the City of Chicago’s Calumet Area Ecological Management Strategy (Phase I) does not cover the Corridor, its principles do. Likewise, the Calumet Ecotoxicology Protocol Task Force is conducting a great deal of groundwork in establishing the cleanup levels necessary to

support different species — in analogy to the risk-based cleanup model used in brownfields remediation — and could be extended into the Corridor as well.

- Large institutional and industrial landholders dominate the Corridor. While this can ease the task of planning and restoration by allowing a negotiated policy to be applied across landholdings — as MWRD, for example, has shown admirable willingness to use its properties along the Little Calumet to serve open space and recreational objectives (MWRDGC n.d., SSMMA/OP 2004) — these landowners have additional and complex concerns. Security is frequently a thorny matter, as is their potential liability for harm caused by legacy contamination.
- Adversarial relations between industry and community groups have characterized the Calumet area for many years. This has been reduced by the Good Neighbor Dialogues facilitated by Citizens for a Better Environment, Southeast Environmental Task Force, and the Delta Institute in recent years, but residual distrust should be taken into consideration.

4. CMP Opportunities

Because of the extensive planning undertaken in the Corridor, numerous projects have been identified that would, if funding were acquired, help fulfill the converging regional vision discussed in the first section.

4.1. Water Quality

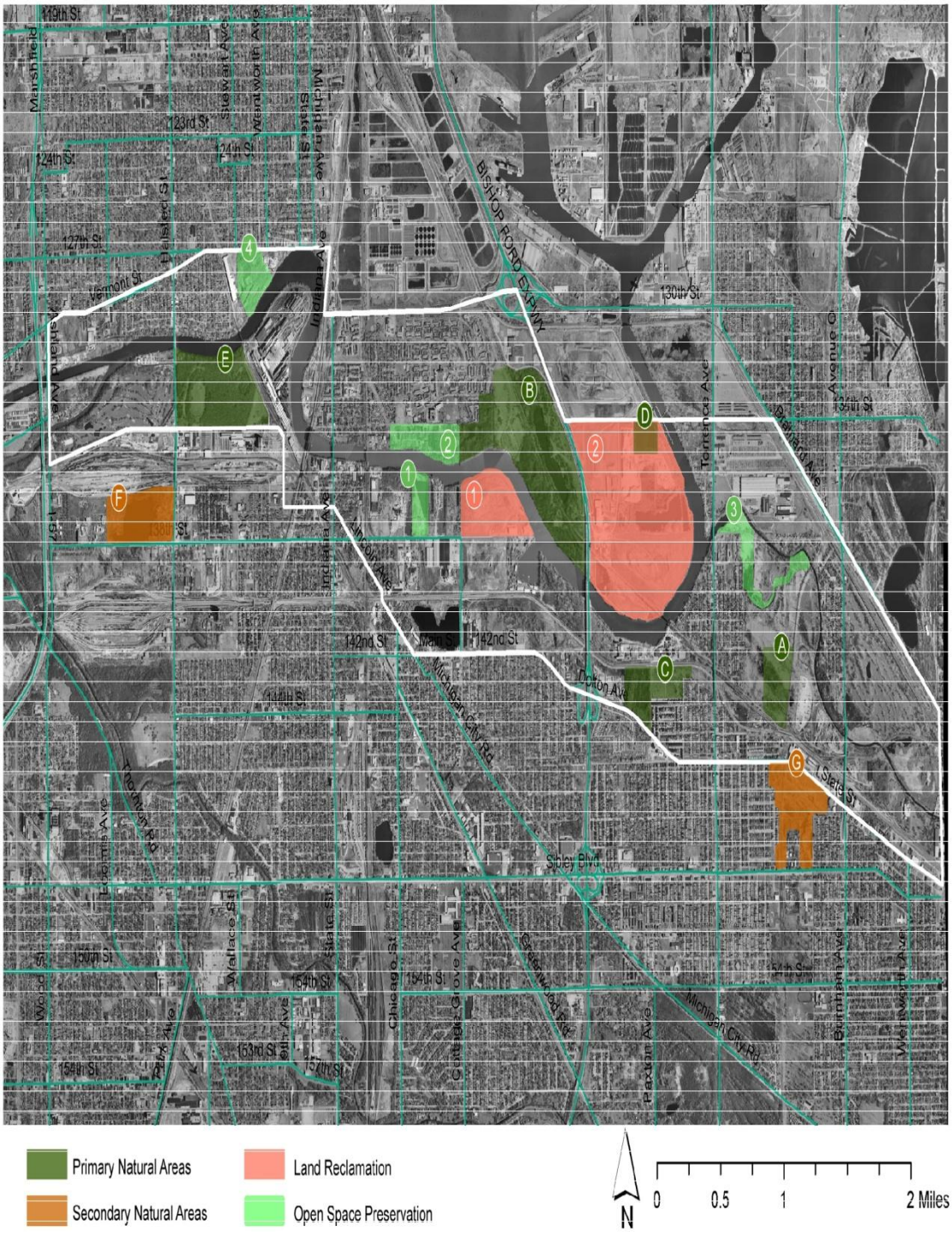
While water quality in the Corridor has clearly improved, use impairments are still substantial. As discussed below, there are several plans for water-based recreation in the Corridor. If these projects lead to additional uses in the Corridor, these uses should be documented and protected, potentially by upgrading the use designations of the waterways in the Corridor. Ongoing monitoring studies could be performed to determine the prevalence of new or expanded uses. Additionally, the recent authorization of the MWRDGC to supervise stormwater management in Cook County may represent an opportunity for communities, through their Water-shed Planning Councils, to help improve water quality in addition to reducing flooding. Coastal Management Program resources could be leveraged to help communities in the Corridor play an active and guiding role in this process. An important aspect of this is multi-objective planning and multi-purpose flood control projects. The MWRDGC has provided excellent examples of this approach with the SEPA stations, which are designed to improve water quality but are also aesthetic gems.

4.2. Habitat, Ecosystem, and Natural Area Restoration

Several natural areas within the Corridor merit close consideration for restoration, chosen be-cause they (a) appear in the Illinois Natural Areas Inventory (INAI) or (b) because they are in public ownership and have outstanding, if challenged, plant and animal communities. These are discussed in Section 4.2.1. Several other sites also have ecological importance for the region. These secondary sites lie immediately outside the Corridor boundary as well as outside the Lake Calumet coastal zone area. The most comprehensive listings of natural areas in the Corridor and the wider Calumet can be found in the National Park Service's regional study (NPS 1998), the Calumet Area Open Space Initiative publication (SSMMA/OP 2004), and the maps associated with the Calumet Open Space Reserve.

The ecosystem priorities identified in the Illinois Department of Natural Resource's Critical Trends Assessment Program for the Calumet Assessment Area should be mentioned here. First, preserving and restoring wetlands, as well as associated upland habitats such as grasslands and forest, should be one of the highest priorities in the Corridor because of the existence of several populations of state threatened and endangered species of birds (IDNR 2000, Vol. 3: 107). Al-though the data are old, Moore, Rogner, and Ullberg (1998) note that their 1993 update of the National Wetlands Inventory (NWI), conducted in 1981 for the Little Calumet River North Leg, showed that 1.1 acre of wetlands from seven sites had been lost in those twelve years. This represents less than one percent of the total acreage identified in the NWI, suggesting that efforts to slow or stop the destruction of wetlands have been successful in the Corridor and that wetland rehabilitation can be pursue

Figure 3. Map of sites identified in Calumet Area Open Space Initiative, Calumet Ecological Park Feasibility Study, and Calumet Open Space Reserv



4.2.1. Primary Natural Areas

A. Burnham Prairie is an approximately 175-acre site of native prairie, bur oak savanna, and wetlands owned by the Forest Preserve District of Cook County (FPDCC). It has high floristic quality and diversity and is an INAI site. It is also on the Illinois Department of Natural Re-sources' "Gap List" of the most important sites in the state to preserve (NPS 1998). This site primarily requires more intensive monitoring and management because of the potential for degradation by the introduction of invasive species.

B. Beaubien Woods Forest Preserve is also owned by the FPDCC. The site is a degraded wet prairie and savanna with excellent restoration potential. The FPDCC is looking to strengthen ecosystem management on the site, but has been stymied by lack of funding for such work (Kircher 2005, SSMMA/OP 2004). As with other forest preserve lakes seeing heavy recreational use, the shoreline of Flatfoot Lake (located within Beaubien Woods) has substantial erosion and could be stabilized through natural plantings (Kircher 2005). In November 2005, a unique partnership – the FPDCC, the Field Museum, the Friends of the Forest Preserves, and the Friends of the Parks — began monthly stewardship workdays at Beubien Woods. Through these workdays, a community of citizen stewards is developing that includes local schools and residents (Ross 2006).

Source of Recommended Sites Identified in Figure 3

Site	CAOSI	CEPFS	COSR
A	3	3	
B	3		
C	3	3	
D			3
E	3		
F	3	3	
G	3		
1			3
2	3		3
3	3		3
4			3

CAOSI: Calumet Area Open Space Initiative
CEPFS: Calumet Ecological Park Feasibility Study
COSR: Calumet Open Space Reserve

C. Dolton Prairie is a private site owned by Ashland Chemical. It, too, is an INAI site with high floristic quality and diversity and also figured in Illinois Department of Natural Resources' Gap Analysis Project. While management at Ashland Chemical has been cooperative and has opened its site to environmental education through the "Calumet in my Backyard" program, large scale restoration, as recommended in the Calumet Area Open Space Initiative, would be facilitated by legal protection for the prairie (SSMMA/OP 2004). Negotiations are underway to secure Dolton Prairie through outright acquisition or a conservation easement.

D. O'Brien Lock Marsh is a 120-acre site owned by the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) adjacent to Waste Management's CID landfill. Originally the Calumet area's black-crowned night heron rookery was in a stand of cottonwoods just south of the O'Brien Lock Marsh, but when the O'Brien Lock and Dam was built in the 1960's the herons relocated to a grove in Big Marsh (Ross and Quail 2005). The O'Brien Lock Marsh is not currently being managed or restored. It is included implicitly in a larger area of landfills and other forlorn space that several plans recommend being reclaimed and eventually opened to the public.

E. Whistler Woods is a FPDCC holding of mainly tall cottonwoods and a diversity of avian species. The

Calumet Area Open Space Initiative recommends cataloguing the plants and animals of the preserve as well as developing a habitat restoration program, especially through existing volunteer channels and the public schools. Although at an earlier stage than at Beaubien Woods, efforts are underway to increase volunteer stewardship work at Whistler Woods (Ross 2006).

4.2.2. Secondary Natural Areas

F. Riverdale Quarry (or Clay Pit Lake) is an INAI site owned by MWRDGC. While it has an important habitat function for uncommon migratory birds and has hosted the state threatened pied-billed grebes and great egrets, it has been reserved by the U.S. Army Corps of Engineers as a potential storage site for dredge spoil from the Calumet River (SSMMA/OP 2004). The Calu-met Area Open Space Initiative nominated the site for upland and wetland restoration as well as installation of trails and a bird watching station, for which conceptual site designs have been developed. The FPDCC would be expected to own and manage the site, as the agency identified it in its 1994 Acquisition Plan, and ongoing restoration would require additional funding.

G. Calumet City Prairie is an INAI site owned by the Forest Preserve District of Cook County with, among other qualities, a fantastic variety of vascular plants (Moore, Rogner, and Ullberg 1998). The FPDCC, with funding from the U.S. Environmental Protection Agency, recently completed a five-year planning and monitoring project on the site. This project is oriented to-ward volunteer steward recruitment. The FPDCC hopes to use outreach materials developed as part of that program to catalyze greater volunteer involvement throughout its holdings in the South Suburbs (SSMMA/OP 2004). Implementation of plans developed for the site by the FPDCC, as well as support for the volunteer stewardship program, are two important coastal management possibilities.

4.2.3. River Enhancement

While aquatic biodiversity appears to be on an upward trend in the Little Calumet, the water-ways adjoining it are not seeing an improvement. This suggests that the cause of the hopeful trend needs to be identified and protected. More generally, improving in stream and riparian habitat quality, such as overhanging vegetation, is important for reclaiming the latent value of the Little Calumet (Kircher 2005). Available habitat restoration alternatives should be evaluated, selected, and implemented, although this will be challenging considering channelization and the commercial use of the river. This should be done in conjunction with an improved fish consumption risk communication and outreach program, as suggested in Section 4.5.

Relatively little is known about the impact that environmental quality itself can have on recreation. Klenosky (2006) is examining how recreation site selection decisions in post-industrial urban areas, specifically the Calumet, can be affected by negative environmental conditions. Intuitively, however, it seems clear that recreational use of the river, and economic improvement through marina development or ecological and cultural tourism, would benefit from enhanced aesthetics along the Corridor. Design guidelines for the Corridor could be prepared that would help ensure the attractiveness of the Little Calumet and potentially the Grand Calumet, much like the guidelines produced for the Chicago River

(CDPD 1998). This would have to be con-ducted, however, in a multi-municipal setting. Such guidelines would also have to address the erosion of the riverbanks. There are many non-armoring techniques available, some of which have been compiled in a set of green riverbank guidelines produced for Chicago Wilderness (CW 1998).

4.3. Public Access and Recreational Resources

4.3.1. Recreational Boating Infrastructure

The FPDCC has identified several places in its holdings at which water access could be improved (Kircher 2005). The two sites with powerboat-capable ramps require the most attention. Beaubien Boating Center is an older facility with security problems related to its location beside an extremely impoverished community, Altgeld Gardens. Upgrading this site with better lighting and other crime-preventive environmental design techniques, along with basic functional improvements, would help maximize the use of the facility. Most importantly, developing and promoting the use of the Beaubien Boating Center as well as the Little Calumet Boating Center at Ashland Avenue will help alleviate the need for additional parking and ramps on the Lake Michigan shoreline. Furthermore, the existing canoe access at Kickapoo Meadows is a dirt track which should be enhanced to make it more permanent and inviting to recreational users. Finally, NIPC officially adopted the Northeastern Illinois Regional Water Trail Plan in 1999, which promoted the creation of the Calumet Area Water Trail. This trail could be established through interpretive and directional signage and improvements at access points as recommended in the plan.

4.3.2. Greenways and Trails

Trail and greenway planning activity has surged in the past few years across the region. As a result several plans have proposed trail and greenway alignments in the Corridor. The plans in-corporate one another's suggestions in places and in others develop original route recommendations. In this section we do not try to select among alternatives but make reference to the plans themselves. The Northeastern Illinois Regional Greenways and Trails Plan (adopted by NIPC in 1999) by NIPC outlines several trails within the Corridor. The Calumet Area Open Space Initiative by SSMMA and Openlands Project (2004) includes numerous community trails that would tie into the Grand Illinois Trail and the American Discovery Trail. The Calumet Regional Transportation Plan produced by the Chicago Department of Environment has a bike-ways component. Alignments from all three of these plans, in addition to the Ped and Pedals plan for northwest Indiana, were winnowed to produce the trail routes in the maps associated with the Calumet Open Space Reserve. Still in progress is the Southeast Environmental Task Force's Calumet Corridor Vision, which includes many trail recommendations besides identifying open space to protect. In addition, there is very strong interest in the region in developing a trail that would lead from the Illinois and Michigan Canal Trail to the Lake Michigan lakefront, running along the Little Calumet River for part of the distance (Byrnes 2005; Kircher 2005; Lukens 2005). This could be developed as an extension of the Illinois and Michigan National Heritage Corridor.

4.4. Historic and Cultural Feature Preservation

4.4.1. Altgeld Gardens

Altgeld Gardens is a public housing project constructed by the federal government in 1945 and granted to the Chicago Housing Authority in 1956 (CHA 2003). It was intended specifically for African-American World War II veterans. In 1954, the CHA added the Philip Murray Homes to the neighborhood, which were designed with a similar Dutch stepped roof treatment. The single family homes making up the Golden Gate area were built during the 1960's (Field Museum 2003). Finally, the apartment complex Eden Green was constructed in 1968, sponsored by the Antioch Missionary Baptist Church (Reiff 2005). While the official community area where these developments are located is called Riverdale, residents typically refer to the area itself, not just the housing development, as Altgeld Gardens (Field Museum 2003).

The Altgeld–Murray homes are undergoing renovation under the CHA's Plan for Transformation, which is scheduled to be completed in 2009 (CHA 2003). The National Park Service deter-mined in 1994 that Altgeld Gardens was eligible for listing on the National Register of Historic Places.

4.4.2. Ton Farm and Underground Railroad

The Jan Ton family immigrated to America from Holland and settled on the north bank of the Little Calumet River in 1849 (CPL n.d.), farming the land identified in area 2, Figure 3. The farm lay along a route used by freedom-seeking slaves as they traveled north along the Illinois River valley and eventually to Canada, and Ton — along with another Dutch immigrant, Cornelius Kuyper — made his farm a station in the Underground Railroad. The site is about 50 acres, mostly vacant, and lies adjacent both to the FPDCC's Beubien Woods and to Altgeld Gardens, creating an important opportunity for the development of an interpretive park revealing the potential of human fraternity next to a neighborhood where the region's later racial struggles played themselves out. The Chicago / Calumet Underground Railroad Effort is an organization devoted to securing a memorial on the site. With the involvement of the National Park Service and the African Scientific Research Institute at the University of Illinois–Chicago, the group held a local charrette recently on the goals and character of development on the site (Banta 2005). C/CURE has also produced an informational DVD on the project. The goals of the group include acquisition of the site, potentially to become part of the adjacent forest preserve, development of a memorial, and supporting a regional economy based partly on cultural tourism and recreation with the development of proposed multi-use trails.

4.4.3. The Colorful History of Calumet

When Indiana went dry in 1916, the towns immediately west of the Indiana state line, chiefly Burnham and Calumet City, absorbed the drinkers of northwest Indiana (Candeloro 2004). Bootlegging intensified with nationwide Prohibition beginning in 1920, and Calumet City — at

that time known as West Hammond — came to have a strip of nightclubs, brothels, and gambling joints along State Street, some with organized crime affiliations. Burnham had a similar situation, with its infamous "Boy Mayor" John Patton of the 1920s condoning and profiting from vice operations in the city (CDC 2005). While the strip in Calumet City was well-patronized, numerous mayors and citizen's groups fought over the years to remove the State Street taverns, culminating with Mayor

Genova's apparently successful campaign in the 1990s (Candeloro 2004).

Some have suggested reclaiming or recreating this history as a form of placemaking, establishing a cultural attraction and a draw to support expanded commercial activity. A recent plan by the City Design Center at the University of Illinois–Chicago for the Village of Burnham recommended that a historic district sandwiched between the Grand Calumet River and the South Shore line Hegewisch station be designed to "reflect Burnham's notorious 1920s Prohibition-era character" (CDC 2005: 37). Likewise, it has been suggested that a commercial development or district on State Street in Calumet City could take advantage of an image of Gangland derring-do (Gigliotti 2005). On the other hand, not everyone feels that vice and the Mafia are appropriate historical elements on which to capitalize, partly because they are not solely historical (Byrnes 2005). The South Holland Historical Society has an exhibit with a diorama of the city's 1929 business district that dramatizes city leaders' fight against the Dillinger gang (Byrnes 2005), a way in which this history can be recollected without glorification.

4.5. Education and Public Awareness

Follow-up outreach using the results of Longoni's study of angling in the region is an important project. An outreach strategy by the responsible state agencies could be prepared that would determine more effective communication channels and address the misconceptions identified in the study. Most of the projects identified in this white paper have a substantial education component. The memorial associated with the Jan Ton Farm and Underground Railroad station, for example, is essentially educational.

The Calumet Stewardship Initiative (CSI) can also support this education. Current CSI projects include educational bus tours, coordinated listings of nature events, volunteer field days involving nature walks and other family activities, monthly stewardship workdays, and school field trips. In addition, through the Calumet Environmental Education Program (CEEP), the Field Museum and community partners provide hands-on environmental education to more than 2,000 students in grades 4 – 12. These students study and monitor nearby natural areas, com-plete stewardship work and help raise public awareness (Ross 2006).

4.6. Land Acquisition / Easement Opportunities

The elements of a land acquisition agenda for the Corridor have been discussed in Sections 4.2 and 4.3 where sites are not already in public ownership. In general, stakeholders in the region have expressed the goals of acquiring the sites identified in the Calumet Open Space Reserve, high quality natural areas, and trail corridors, as well as protecting river frontage as publicly accessible open space. Finally, despite the need for acquisitions and easements, there is no land trust operating in the Calumet area, whereas there are several operating elsewhere in northeastern Illinois (Ross 2005). One capacity-building project for land acquisition would be to deploy Coastal Management resources as a seed fund for a land trust in the area.

In addition, several large areas within the Corridor have been identified in regional plans as candidates for land reclamation (Figure 3; table in Section 4.2.1). These are generally closed or to-be-closed

landfills. An excellent example of this in the region is the Harborside International Golf Course on the north and west sides of Lake Calumet, which was developed on top of a capped municipal solid waste and a construction debris landfill.

5. Existing Authorities

Agency/Authority	Description
Chicago Housing Authority	Oversees public housing in Chicago and (through contractor) housing voucher program in metro area
City of Blue Island	Municipality
Village of Burnham	Municipality
City of Calumet City	Municipality
Village of Calumet Park	Municipality
City of Chicago	Municipality
Village of Dolton	Municipality
Village of Riverdale	Municipality
Forest Preserve District of Cook County	Acquires and manages forest preserve properties
Illinois DNR Office of Water Resources	Flood control
Illinois Environmental Protection Agency	Regulates water quality under Clean Water Act
Metropolitan Water Reclamation District of Greater Chicago	Operates regional wastewater treatment facilities, is a major landowner in Corridor, has stormwater management authority for Cook County, flood control
U.S. Army Corps of Engineers	Dredging, wetlands fill permits, flood control, Lake Michigan diversion accounting, dam operation
U.S. Supreme Court	Enforces decree regulating Lake Michigan diversion

6. Existing Committees

Organization	Website	Description
African Scientific Research Institute	http://www.uic.edu/orgs/asri/about.htm	University research center, archaeology and African-American history
Altgeld-Murray Homes Local Advisory Council	http://www.thecha.org/housingdev/altgeld_murray_homes.html	Tenant organization at Altgeld-Murray Homes
C/CURE	3	Organization promoting memorial park for Underground Railroad site at Jan Tron farm
Calumet City Historical Society	http://www.lakenetnwi.net/member/cchs/	Historical society
Calumet Ecological Park Association	http://www.lincolnnet.net/cepa/home.shtml	Organization promoting establishment of Ecological Park in Calumet Region
Calumet Heritage Partnership	http://www.chicagosteel.org/	Organization promoting preservation of Calumet area labor heritage and steel-making structures
Canal Corridor Association	http://www.canalcor.org/	Organization helping develop cultural sites and tourism along I & M Canal National Heritage Corridor
Chicago Southland Chamber of Commerce	http://www.chicagosouthland.com/	Chamber of commerce in south suburbs
Chicago Southland Convention and Visitors Bureau	http://www.cscvb.com/home.cfm	Tourism agency for south suburbs
Chicago Southland Economic Development Corporation	http://www.chicagosouthland.com/EDC/default.aspx	Economic development organization in south suburbs
Chicago Wilderness	http://www.chicagowilderness.org/	Regional environmental consortium in northeastern IL, northwestern IN, and southeastern WI
Delta Institute	http://www.delta-institute.org/	Great Lakes organization; pollution prevention in Calumet area
Field Museum	http://www.fieldmuseum.org/	Research and education institution on south side of Chicago
Lake Calumet Ecosystem	http://dnr.state.il.us/orep/c2000/ecosystem/partnershi	Environmental organization established through

Partnership	ps/	Illinois DNR
National Park Service North Central Research Station	http://www.ncrs.fs.fed.us/	Research division in National Park Service
Northeastern Illinois Planning Commission	http://www.nipc.org/	Regional planning body providing official forecasts, planning/natural resource technical assistance
Openlands Project	http://www.openlands.org/	Environmental advocacy and planning organization, regional focus
People for Community Recovery	http://www.geology.wisc.edu/~wang/EJBaldwin/PCR/	Altgeld Gardens community organization
Southeast Environmental Task Force	http://www.southeastenvironmental.org/	Environmental advocacy group in southeast Chicago and south suburbs
South Suburban Mayors and Managers Association	http://www.ssmma.org/	Council of governments for south suburbs

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